Original Research Paper

Asymptomatic Dengue Hepatitis: An Observational Study

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Abstract: Introduction: Dengue fever is an arthropod-borne acute febrile illness caused by dengue virus. During current epidemic of Dengue in our region high number of dengue patients were found to have deranged liver biochemistry. In this study we analysed 60 such patients for liver involvement.

Keywords: Dengue Fever, Flaviviridae, Hepatic illness, Cirrhosis, Microvesicularsteatosis.

Introduction:

Dengue fever is an arthropod-borne acute febrile illness caused by dengue virus (single positive-stranded RNA virus of the family *Flaviviridae*; genus *Flavivirus*).. Dengue or "break bone fever" has gradually evolved as one of the important causes of febrile illness in the tropical and subtropical region. Second only to malaria, dengue is a common mosquito-transmitted disease, and currently, in all probability it is the most common cause of arboviral disease globally. Around 2.5 billion people in 100 endemic countries are believed to be susceptible, so is the equally significant number of travellers to these tropical and subtropical regions. Presenting with a wide range of severity, "severe" dengue (Group C) as categorized by World Health Organization (WHO) in 2009 includes the dengue hemorrhagic fever (DHF) and DSS[3]. Despite inadequate surveillance of cases from the underdeveloped tropical countries, the average number being reported per year has increased drastically. A host of factors including the relentless urbanization with poor hygiene, dilapidated health systems to increasing international travel fuel the spread of this disease geographically and increase the disease burden of tropics significantly

This disease has been found to have profound effect on multiple organ systems, the commonest being the liver. Starting from asymptomatic elevated transaminase levels to acute liver failure (ALF), dengue has all the properties of a hepatic illness. In this study we have analysed the liver biochemistry in dengue patients presenting to Rajindra hospital with that of normal

Materials and Methods:

60 patients of serologically confirmed (positive for either IgM or NS1 antigen) dengue fever; who reported to the Emergency ward of Rajindra hospital, Patiala were enrolled into the study.

Inclusion Criteria:

Patients presenting with acute febrilewho tested positive for Dengue fever(NS1, IgM) were enrolled into the study.

Exclusion:

Patients negative for Dengue serology

Patients with dengue shock syndrome and multi organ failure

Patients positive for HIV, HBsAg or Anti HCV antibodies

Patients with known cirrhosis or chronic liver disease

At first presentation, various symptoms and physical examination were noted and appropriate lab investigations were sent. Patients were re-evaluated at day 5 and blood investigations were repeated. Liver biochemistries at baseline and at day 5 were compared. Standardised kits were used for testing dengue antigens, viral markers and liver biochemistry, they were analysed using standard analyser available in central biochemistry laboratory of Rajindrahospital, Patiala. Detailed history and physical examination were performed at presentation. A calibrated thermometer was used

for checking fever.

Analysis & Results:

Comprehensive analysis of 60 patients who were considered for study following the criterion adoptedwas carried out. Mean age was seen to be around39.89 years .Malefemale ratio was 1.5 (36 males/24 females). It was seen that in 43 (71.67%) of the casesAST/ALT were markedly deranged, mean value of AST and ALT was 431.41 (range: 147-987IU/L) and 314.69 (range: 110-773 IU/L) respectively. Fifteen of patients with abnormal liver biochemistry had mild elevation in bilirubin levels.Mean value of bilirubin was 4.17 (range: 3.2-5.5 mg/dl).None of the patients had raised ALP levelsMean value of Alkaline phophatase was 97.71 (range: 44-147 IU/L) which was within normal limits. Mean platelet count was 26260/cumm... Thirteen (30.23%) patients with elevated liver enzymes were symptomatic presenting with varied symptoms such as nausea, vomiting, and abdominal discomfort.

None of the patients had significant bleeding during the study period. There was no mortality in the studied group of patients.

Discussion:

Liver involvement in cases of dengue virus has been frequently described in many regions all over the country and world-wide, the pathogenic mechanisms of which are yet to be fully understood[2]. It is believed that it may be related to a combination of interactionsbetween the virus, the host and time period of the disease[3.].The virus may have a replication phase in hepatocytes, causing hepatic injury, stimulating apoptosis, microvesicularsteatosis and development of Councilman-Rocha Lima bodies, similar to yellow fever infection and other viral hemorrhagicdiseases. The histopathological observation of liver specimens in the studies carried out is generally restricted to fatal cases because of the risk of bleeding diathesis in acutely ill patients. Some viral strains also seem to have a prominent liver tropism, especially DEN-1 and DEN-3[4]

Chronic liver disease, alcoholic steatonecrosis, hemoglobin disorders and hepatotoxic drug use (e.g.: salicylates, acetaminophen and antiemetics) during dengue infection may understandably predispose to and even increase liver injury. These drugs may become toxic in patients with dengue-associated hepatitis or hypoperfusion, although no correlation between acetaminophen overdose and the development of liver failure has beenobserved/reported[4]. In our study none of the patients had liver related morbidity/mortality

Despite a remarkable increase in aminotransferases, there has been no reporting/observation of cholestasis and recovery was favorable. Jaundice in dengue infection has been associated with fulminant liver failure and by itself is already a poor prognostic factor[5]. In our study there was no mortality and one of the patients went into fulminant hepatic liver failure.

Conclusion:

From the above study, conclusion drawn is that a high number of patients with dengue fever (71.67%) had deranged liver biochemistry.In all of the patients Liver biochemistry recovered spontaneouslywithin afew days.In view of markedly deranged liver biochemistry, careful prescription of high dosages of acetaminophen (Paracetamol) may be argued.

Conflict of Interest: None

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Abbreviations used:

AST (Aspartate aminotransferase)
ALT (Alanine aminotransferase)
LFT (liver function tests)